

A HYBRID POPULATION OF CLAYTONIA IN VIRGINIA

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An interspecific hybrid population of *Claytonia* (Portulacaceae) is reported for Virginia. Putative parents are the native species of the region, *C. caroliniana* Michx. and *C. virginica* L. The station is in Rockbridge County, 4.5 miles south of Lexington, on the south bank of Buffalo Creek, 0.7 miles west of U. S. Highway 11.

C. caroliniana is abundant on the rich, loamy, forested talus of the north-facing limestone bluff which overlooks Buffalo Creek at this point. This steep habitat is relatively undisturbed. The bluff yields abruptly westward to rolling pasture, deforested and highly disturbed, perhaps, from colonial times. In damp habitats in this zone one finds *C. virginica*. On the border between the two parental habitats there is a broad springy depression in the hillside, highly disturbed, given to weeds and saplings, and used for a brush dump. This is the habitat of the hybrid *Claytonia* population.

Parental populations approach the hybrid habitat, *C. caroliniana* from the east and *C. virginica* from the west, both perfectly identifiable within twenty meters of each other. The hybrid population forms a reticulate link with the populations of the putative parents in that plants carry seemingly unlimited combinations of characters. Leaf width ranges from narrowly linear and apetiolate to broadly lanceolate and petiolate with an entire gamut of intermediacy. Although the hybrid population is not massive (some plants perhaps lying under dumped brush) enough were seen to conclude that gene flow must be thorough and uninhibited. The situation is exactly as one would expect from repetitive prime and back crossing involving true compatibility. Bees were observed to visit indiscriminately all kinds of plants involved in April, 1962 and April, 1963. Chromosomal balance between *C. caroliniana* and *C. virginica* ($2n = 16$) is



Plate 1296. Naturally hybrid *Claytonia* plants from Virginia. A. *C. virginica* from putative parent population. B. *C. caroliniana* from putative parent population. C. Various intergradient plants from apparent hybrid population.

known to exist (Rothwell, 1959). Fertility of the hybrid plants seems assured.

Claytonia virginica is reputedly a highly variable species, both in cytology and external morphology (Rothwell, l.c., Lewis, 1959, 1962). In Virginia it occupies varied habitats. It tolerates human disturbance of habitat as long as its moisture requirements are met and it is not deliberately or accidentally destroyed.

Claytonia caroliniana is not known to be so variable. Extensive studies have not been applied to this species as they have to *C. virginica*. In Virginia it occupies relatively undisturbed habitats, such as the bases of cliffs. Being essentially a northern species its shade requirements may exceed those of *C. virginica* at the Virginia latitude, thus possibly failing where the forest cover is removed. *Claytonia virginica* may, of course, occur in a similar habitat; if so, *C. caroliniana* is, as a rule, distant.

It is suggested that *C. caroliniana*, in the southern Appalachian region, is a "relict" from an ancient northern reservoir, surviving in habitats that most simulate conditions in the northern heartland of the species. Such habitats in Virginia are usually so fortuitously situated by terrain and patterns of agriculture as to remain relatively undisturbed and isolated from the habitats of the more tolerant *C. virginica*. Thus *C. caroliniana* could develop in isolation from *C. virginica* all the while retaining an original cross-compatibility with its congener. By redundant chance, in this instance, man has perforated the ecological barrier long existing between the two species. The opening up of land close to a population of *C. caroliniana* has provided a habitat suitable to *C. virginica*, the more aggressive species, so that in time the two parental populations were within pollinating distance of each other.

Clearly, the present hybridization is exceptional. Rothwell (l.c.), in his extensive studies, found no adjacent populations of the two species nor any intermediate populations. Thus there remains no reason to question his conclusion that the highly complex chromosomal variation, known in *C.*

virginica, is unrelated to interspecific hybridization. Topography and land use still generally preserve the ecological barrier between the two species, but it seems likely that more intergradient populations will be found in the future, if looked for.

Sheets of specimens pertinent to this paper will be deposited in the herbarium of Virginia Polytechnic Institute.

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